UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D.C., 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

December 24, 2002

MEMORANDUM

SUBJECT: MGK 326/ Disopropyl isochinchomeronate RED
PC Code No.: 047201
DP Barcode: D198603

FROM: James Goodyear, Ph.D., Biologist
John Jordan, Ph.D., Microbiologist
Environmental Risk Branch III
Environmental Fate and Effects Division 7507C

THRU: Stephanie Irene, Acting Branch Chief
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Environmental Fate and Effects Division 7507C

TO: Michael Goodis, Acting Branch Chief
Tawanda Spears, Chemical Review Manager
Reregistration Branch III
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This memo transmits an Environmental Fate DER; EFED's fate and ecotox profiles and a copy of the Drinking Water memo to HED. No ecological risk assessment was done as it was assumed that there was little exposure to nontarget organisms from the registered uses.

I. Environmental Risk Conclusions

The only market niches for products containing this active ingredient are personal and companion animal insect repellents. EFED assumes the amount contaminating drinking water from these uses is negligible

Regarding the companion animal use, EFED assumes products used as surface sprays of outdoor premises (the interior of kennels, barns, *etc.*) and as pet dips would result in negligible exposure and risk to non target organisms.

II. Precautionary Labeling

A. End use Product (Companion animal products other than pet dips)

"This pesticide is toxic to fish. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwater or rinsate."

B. Manufacturing Use Product

"This pesticide is toxic to fish. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA."

III. Use Rates.

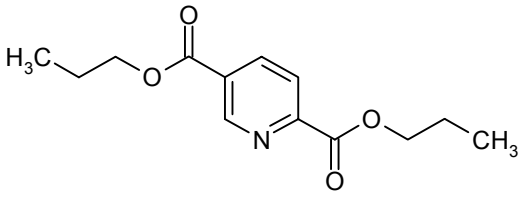
MGK 326 (dipropyl isocinchomeronate) is an insect repellent used for household pets, humans, and horses. Approximately 80% of the use is on animals. The key pests for which MGK is used are biting flies, *e.g.*, mosquitoes, botflies, deer flies, face flies, horn flies, black flies, stable flies, horse flies, house flies, gnats, fleas, ticks, *etc*.

Aerosol products, for human application, range in percentage from 2.5% to 0.5%. Dip applications for dogs are a 4% MGK 326 (l Fl oz per gallon of water). There are also sprays containing 0.2% MGK 326 that can be applied directly to horses, and wipe-on towlettes at 1% MGK 326, that can also be applied to horses.

IV. PHYSICAL/CHEMICAL PROPERTIES

Common Name: dipropyl isocinchomeronate
Chemical Name: dipropyl isocinchomeronate
Trade Names: MGK® Repellent 326
Empirical Formula: $C_{13}H_{17}NO_4$
CAS No.: 136-48-8
PC Code: 047201

A. Structure



B. Properties

Molecular Weight: 251.3
Physical State: viscous liquid at room temperature
Color: white/amber
Solubility in Water: 0.892 g/L
Vapor Pressure: 4.92 x 10^{-7} mm Hg at 25B C
Melting Point: NA - liquid at room temperature
Boiling Point: 150B C at 1 mm Hg

Pure MGK Repellent 326 is an amber liquid. MGK Repellent 326 is practically insoluble in water. It is miscible with petroleum distillates such as kerosene, toluene, xylene, methanol, ethanol and isopropanol. It is stable under ambient storage conditions and unstable at temperatures above 120B C. The vapor pressure of MGK Repellent 326 is 5 X 10^{-7} mm Hg at 25B C. The log of the octanol/water partition coefficient ($logP_{ow}$) is 3.567. The dissociation constant for MGK Repellent 326 is: K_a = 0.119 at 25B C.

V. Summary of Results Environmental Fate Studies

161-1 Hydrolysis. (MRID 43073601) Testman, R.1993. Hydrolysis of MGK R-326 as a function of pH at 25 degrees C. BTC Study No. P0893004. The parent t-1/2 was 14 hours and 17 days at pH9 and 7, respectively. The parent was stable at pH 5 (no degradation during 30 days). The first of the three degradates is: 2,5-pyridine dicarboxylic acid (degradate A). The other two degradates are the monoacid formed by the ester hydrolysis of pyridine-5 (degradate B), and the monoacid formed by the ester hydrolysis of pyridine-2 (degradate C).

According to the registrant's memo of 7/11/96, the "outdoor food use" has been cancelled. Therefore, the hydrolysis requirement is the only one required under the present use.

VI. Ecological Toxicity Studies

A. Summary of Results

Species	% a.i.	LC50/EC50 (ppm)	Toxicity Category	MRID Author/Year	Study Classification[1]
Bluegill sunfish (*Lepomis macrochirus*)	99.5	0.44	Highly toxic	42174501 Sword, 1991	Core
Rainbow trout (*Oncorhynchus mykiss*)	100	1.0	Highly toxic	Bowman, 1991 41911401	Core
Daphnid *Daphnia magna*	99.7	18	Slightly toxic	41525302 Blakemore, 1990	Core
Northern bobwhite quail *(Colinus virginianus)*	98.8	5,000 (dietary)	Practically nontoxic	41685502 Long, 1990	Core
Mallard duck (*Anas platyrhyncos*)	98.8	> 5620 (dietary)	Practically nontoxic	41685501 Long, 1991(?)	Core

[1] "Core" studies satisfy the guideline requirements.

B. Conclusions

Birds- Since the LC50s are greater than 5,000 ppm, MGK 326 TGAI is categorized as practically nontoxic to avian species on an acute dietary basis. The guideline (71-2) is fulfilled (MRIDs 41685502 and 41685501). Because of the use pattern and because of the high avian dietary LC50s, the Avian acute oral study (71-1) will not be required. It will be required if there is a change in the formulation, use pattern, or concentration.

Fish- Since the LC50s are within the range of 0.1-1 ppm, MGK 326 TGAI is categorized as highly toxic to avian species on an acute oral basis. The guideline (72-1) is fulfilled (MRIDs 42174501 and 41911401).

Aquatic Invertebrates- Since the EC50s are within the range of 10 - 50 ppm MGK 326 TGAI is categorized as slightly toxic to aquatic invertebrates on an acute basis. The guideline (72-2) is fulfilled (MRIDs 41525302).

No additional studies are necessary to support existing uses.

APPENDIX A

DATA REQUIREMENTS
Environmental Chemistry for MGK 326

Guidelines	Data Requirements	Are Data Requirements Satisfied?	MRID	Study Classification
161-1	Hydrolysis	No[1]	43073601	Supplemental[2]
161-2	Photolysis in Water	Not required		
161-3	Photolysis on Soil	Not required		
162-1	Aerobic Soil Metabolism	Not required		
162-2	Anaerobic Soil Metabolism	Not required		
162-3	Anaerobic Aquatic Metabolism	Not required		
162-4	Aerobic Aquatic Metabolism	Not required		
163-1	Mobility in Soil/Sediments	Not required		
163-1	Mobility in Soil Columns	Not required		
163-2 & 163-3	Volatility from Soil (Laboratory and Field, respectively)	Not required		
164-1	Terrestrial Field Dissipation (Short Term)	Not required		
164-2	Aquatic Field Dissipation	Not required		
165-4	Bioaccumulation in Fish	Not required		

1 The present use patterns of as a repellent for biting insects on humans and domestic companion animals does not require the study be repeated.
2 The study is supplemental because the sterility of the test water was not confirmed. The study can be upgraded if that information is provided.

APPENDIX B.

DATA REQUIREMENTS
Ecotoxicity for MGK 326

Guideline	Date Requirements	Are Data Requirements Satisfied?	MRID	Study Classification
71-1(a)(b)	Acute Avian LD_{50} Bobwhite quail or Mallard duck	No[1]		
71-2(a)	Avian Dietary/Quail	Yes	41685502	Core
71-2(b)	Avian Dietary/Duck	Yes	41685501	Core
72-1(a)	Fish Toxicity Bluegill Sunfish LC50	Yes	42174501	Core
72-1(c)	Fish Toxicity Rainbow Trout LC50	Yes	41911401	Core
72-2(a)	Invertebrate Toxicity Daphnid EC50	Yes	41525302	Core

1 The study is waived for the use pattern as a repellant for humans and companion pets due to the results of the avian dietary studies indicating MGK 326 is practically non toxic.

No other ecotoxicity studies are required at this time.

APPENDIX C. Drinking Water Memo to HED

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

Date: 11/12/02

SUBJECT: Drinking water concentrations for Di-N-Propyl isochinchomeronate (MGK 326): PC 047201

FROM: Henry Craven, Biologist
Environmental Risk Branch 3
Environmental Fate and Effects Division (7507C)

THRU: Stephanie Irene, Acting Branch Chief
Environmental Risk Branch 3
Environmental Fate and Effects Division (7507C)

TO: Rebecca Daiss
Reregistration Branch 4
Health Effects Division (7509C)

At the SMART meeting of 10/16/02, William Chase II, Director of Registration and Regulatory Affairs for McLaughlin Gormley King Company provided a written response to SRRD's Generic Questions concerning Di-N-Propyl Isochinchomeronate. The response stated the only market niche for products containing this active ingredient are as personal and companion animal insect repellents. EFED assumes the amount contaminating drinking water from the product being washed off the human body is negligible.

Regarding the companion animal use, products used as surface sprays of outdoor premises (presumably the interior of kennels, barns etc.) should not result in contamination of drinking water. Products used as pet dips would be discharged as waste water to septic systems or to sewage treatment plants. It is possible that Di-N-Propylsochinchomeronate so disposed could pass on to surface or ground water if not fully degraded during treatment. However, EFED assumes the amount reaching drinking water sources from the pet dip use would be negligible.

Unless HED believes further input from EFED is necessary to address drinking water issues relating to MGK 326, this memo should be considered as EFED's final position.